REMARKS

It is requested that Claim 1 be amended to incorporate subject matter of claim 43. Applicants request that the Amendment be entered to expedite prosecution, and to put the claims in better form for consideration on appeal. Specifically, there are three rejections maintained in the August 18 Final Rejection, and only one of them involves claim 43. The amendment would therefore reduce the issues for appeal in the event the Examiner is not persuaded by comments below that the remaining one rejection should be withdrawn.

The amendment to claim 1 is also made without prejudice or disclaimer to the right to reintroduce subject matter of originally recited in a later application.

It is requested that claim 43 be cancelled in the event the amendment to claim 1 is entered.

§103 Rejection Based on Nakaoka in view of Chen

It is stated in the August 18, 2008 Office Action that Claims 23, 43, and 44 have been rejected as unpatentable over Nakaoka in view of Chen (US 4,627,911). Applicants respectfully request consideration of this rejection to the extent it is applied to Claim 1 as amended above.

Briefly, the subject matter of claim 1 now defines the invention as having an average particle size in the range of 20 to 150 microns. This particle size range is particularly suitable for materials designed to be fluidizable for use in a FCC unit. As submitted throughout the prosecution of the above application, the inventive composition having this particle size range comprises zeolite, a Lewis acid component, inorganic oxide matrix, and 0.20 weight percent or less Na_2O. It has been discovered by Applicants that reducing the sodium level to the level recited enhances the performance of the Lewis acid component for reducing sulfur in gasoline fractions produced in a FCC unit.

The particle size recited therefore is reflective of the composition's intended use in FCC processes. A FCC catalyst comes in contact under fluidized conditions with liquid hydrocarbons, heated in reactor temperatures, e.g., in the range of 400 to 700°C, and then transferred to a regenerator where residual carbon (coke) is removed from the catalyst particles. The regenerated catalyst particulate is then reused in subsequent reactor phases. The recited particle sizes facilitate the use of the catalyst in this manner.

Nakaoka, on the other hand, discloses hydrotreating compositions having diameters on the scale of 1.6 millimeters. See Example 1, column 5, line 63. While these catalysts do comprise a zeolite, they also comprise metals such as nickel and/or other hydrogenating metals that act to hydrotreat feedstocks in units other than typical FCC units. The catalyst used in these processes is frequently fixed bed catalysts and therefore is a catalyst of a different and larger size. Put another way, Nakaoka is disclosing a hydrotreating catalyst composition, and it is submitted that the particle size of Nakaoka's catalyst is reflective of its typical use. Nakaoka is therefore not suggesting utilizing catalyst in a form other than that illustrated in its Example 1. Nakaoka's use of nickel also suggests away from using Nakaoko's catalyst as one in FCC, because as submitted earlier, such metals are contaminant to FCC catalysts. The Office Action also acknowledges that Nakaoka does not expressly teach the presence of Lewis acidity and the advantage of preparing a Lewis acid-containing catalyst (e.g., reducing gasoline sulfur). It is submitted that this is more evidence that Nakaoka does not motivate one of ordinary skill to manipulate Na_2O of the catalyst composition to levels of 0.20% by weight or less to improve a composition containing Lewis Acid designed for use in FCC, e.g., those having the particle sizes now recited in Claim 1.

It is submitted that Chen's teachings go no further to suggest Applicants' catalyst composition. The general purpose of Chen's patent is to protect a zeolite from adsorption of contaminants through the use of methanol in a cracking reaction, but not one specifically related to a typical FCC process involving a step in which catalyst particles are recirculated to the riser after regeneration. See Chen's Abstract and Column 5, lines 14-16. Figure 1 shows that catalyst exits the process as waste.

Chen, moreover, describes using "finely divided" zeolite, and Column 4, line 38, describes the catalyst as having a mean particle size of 3×10^{-4} cm, which is equivalent to 3 microns. It is submitted that Chen does not teach combining the zeolite with any other materials such as matrix or Lewis Acid components. Based on the particle size mentioned in column 4, it is submitted that Chen is using crystalline zeolite alone. Indeed, Chen would have no need for materials other than zeolite because the catalyst is discharged after its first use. It therefore is not seen how Chen teaches modifying a catalyst taught by Nakaoka, much less teaching one to modify it to a catalyst composition, size, and form used in a FCC process.

It is further submitted that the section of text in Chen referenced in the Office Action, i.e., column 1, lines 27-33, is not reflective of Chen's general teaching. The text therein is merely offering background information as to the forms and sizes of earlier catalysts utilizing zeolite. It therefore is submitted that one of ordinary skill reading Chen would give no more weight to that statement as a specific teaching other than as of one of interest or background. It is submitted that Chen therefore offers no assistance or motivation in interpreting or utilizing Nakaoka's teachings to make a FCC catalyst. Indeed, it is not seen how Chen offers to modify Nakaoka's catalyst as a hydrotreating catalyst, other than perhaps to confirm that a hydrotreating catalyst should have a size on the scale of no smaller than 1/25 of an inch. Indeed, Chen states in his background that a fixed bed catalyst, e.g., such as Nakaoka's, are to have particles ***no smaller*** than 1/25 inch, which is about 1000 microns. Chen therefore at best suggests away from modifying fixed bed catalysts such as Nakaoka to be of the size now recited in claim 1, e.g., a particle size that is aeratable or fluidizable in a FCC unit per the Geldhart classification. It is therefore not seen how Geldhart confirms that Chen and Nakaoka suggest particles in the size range suitable for FCC, when both of those references are expressly directed to catalysts for use in "non-FCC" processes. Withdrawal of the rejection based on Nakaoka and Chen is therefore requested.

§102 and §103 Rejection Based on Nakaoka

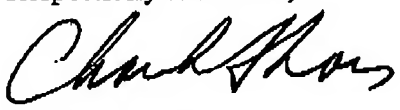
Claims 1-22, 25-29, and 31-39 were rejected under §102 as anticipated by, or in alternative under §103 as obvious over Nakaoka (US 5,686,374). Applicants submit that this rejection would no longer be applicable in the event the above amendment to incorporate subject matter of claim 43 into claim 1. Applicants therefore request its withdrawal.

§103 Rejection Based on Nakaoka in view of Roberie

Claims 24 and 40-42 are rejected under §103 as being unpatentable over Nakaoka in view of Roberie (US 6,482,315). Applicants submit that this rejection would no longer be applicable in the event the above amendment to incorporate subject matter of claim 43 into claim 1 is entered. Applicants therefore request its withdrawal.

Accordingly, it is respectfully submitted that the claims as amended above are in condition for allowance, and Applicants request notification to that effect in the form of a Notice of Allowability.

Respectfully submitted,



Charles A. Cross
Attorney for Applicant
Reg. No. 32,406

Tel: (410) 531-4518
W. R. Grace & Co.-Conn.
7500 Grace Drive
Columbia, Maryland 21044

Charge: DAV/FCC